MOLYBDENUM OR NOT? Paul F. White

Note picture on facing page of strapleaf on hibiscus.

Is the strapleaf deficiency of hibiscus caused by a lack of molybdenum? For a probable answer a little background will help.

1. Molybdenum was found to be an essential element for tomatoes in 1939 by Arnor ard Stout and later (1940) found to be essential for all higher plants.

2. The function in higher plants appears to be several fold;

   a. To change nitrate nitrogen to nitrite nitrogen (a more usable form once inside the plant). Nitrogen, of course is needed for the all important protein synthesis.

   b. Molybdenum is needed for synthesis of tannins, glucose, fructose, starch, glutamic acid, ascorbic acid (vitamin C) and forms of phosphate. A plant which is deficient in molybdenum is also low in these very important organic compounds. Is molybdenum needed for each one? Probably not directly, but it definitely affects some reactions whose products will effect the formation of these compounds.

3. Molybdenum is needed in greater quantities by the nitrogen fixing bacteria, Azotobacter, to change nitrogen gas (N_2) into a more usable form.

4. Molybdenum is needed by plants in extremely minute amounts. (.01 ppm or one part in one hundred million.)

5. Plants may accumulate 100 ppm of molybdenum without any apparent harm or production of toxicity symptoms. If the plants are consumed by the ruminant animals the "heart disease" will develop. Sometimes called molybdenosis,

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